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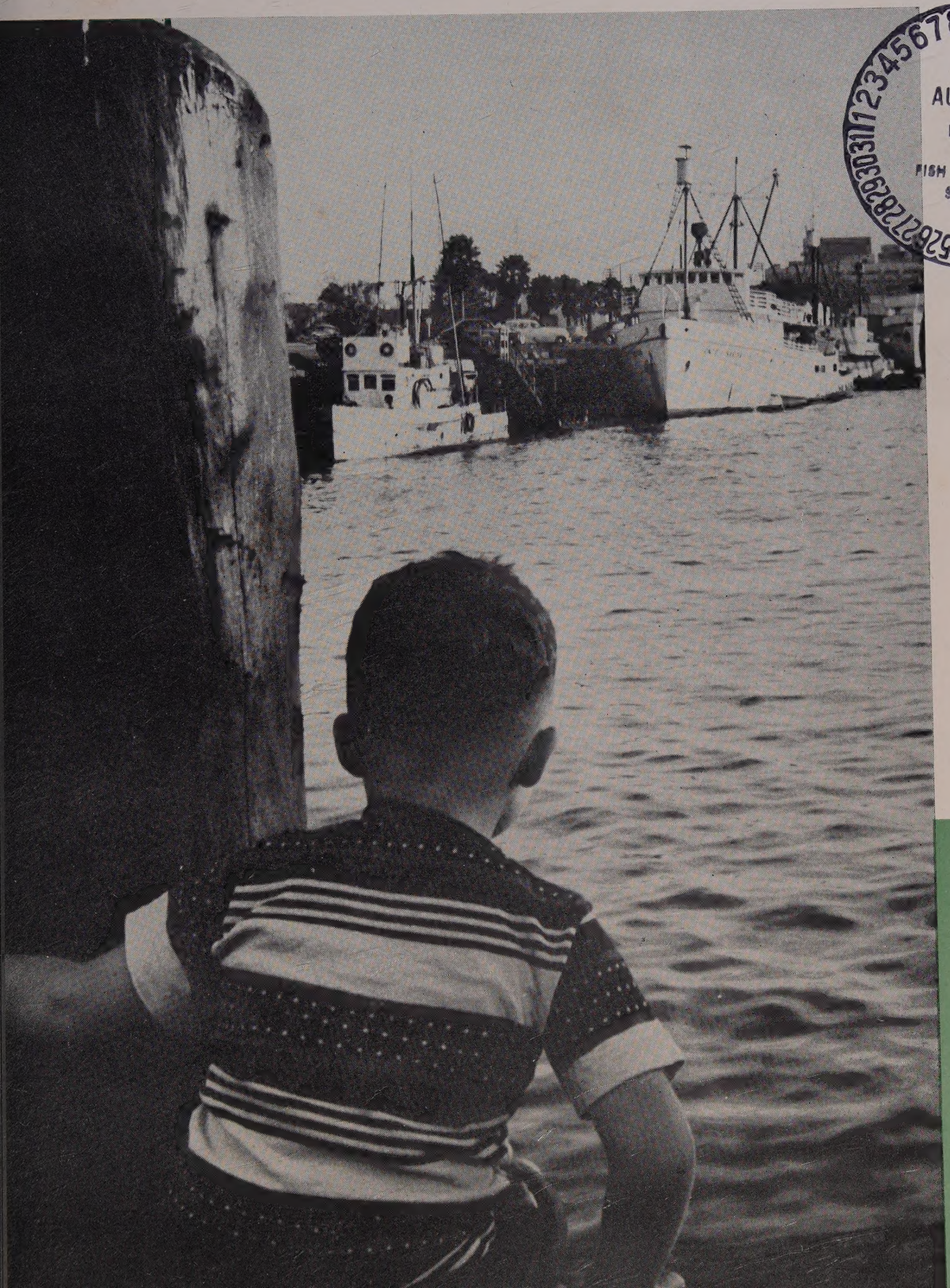

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PAN AMERICAN FISHERMAN

The Japanese Import Situation

Recently the following United ess dispatch appeared in a num- r of California newspapers:

*

UNA FREIGHTER RASHES PICKETS

AN PEDRO (UP)—The freighter anshu Maru has unloaded a 600 ton rgo of tuna here despite picketing wives of California fishermen.

The Banshu Maru, a member of e Japanese tuna fleet, was unloaded nday with her frozen fish placed sale at $350 a ton to local canner- s.

The canneries must pay $420 a n for tuna caught by U.S. fisher- en. The difference in prices has led widespread unemployment coastal ties and to the demand for federal rtailment of imported tuna.

*

A little longer version of the above as printed in the Los Angeles Times, nd brought out the following letter ated as "the actual facts" from E. . Morris of the Tuna Research oundation:

*

The Japanese freighter Banshu Maru carried only 350 tons for this ort out of a total cargo of 600 tons f frozen tuna imported from Japan. his 350 tons of tuna was albacore, rom which white meat tuna is acked, and was delivered to a Ter- minal Island canner.

There presently is not one pound f albacore aboard any vessel in the una fleet tied up at San Pedro or San Diego.

The remaining 250 tons consisted f yellowfin tuna, consigned to a can- er at Grover City, Calif., and a can- er in San Francisco.

The 1955 price for American- aught albacore has not as yet been egotiated between fishermen and anners, because local-caught alba- ore will not be available for about nother month. The price paid for his shipment was $250 per ton f.o.b. apan. Freight and handling charges of approximately $70 per ton bring the landed cost to $320 per ton for this lot of albacore.

It is the importation of yellowfin tuna that supplements, and in some instances replaces, the catch of the American fisherman. Tuna canners located elsewhere in the country—Northern California, the Pacific Northwest, the Atlantic Coast and in Hawaii—depend on this as a source of supply.

In order to remain competitive, Southern California canners must participate in this market to some extent. The price of American-caught yellowfin tuna is currently set at $310 a ton instead of the $420 mentioned.

We do not know the destination of the Banshu Maru. However, Federal law would prohibit the Banshu Maru from landing at any United States port any fish taken aboard as a result of a "rendezvous at sea with the Japanese tuna fleet to pick up a fresh load."

U.S. State Department Studies Tuna Industry

The status of the domestic tuna industry in California in relation to United States tariffs and trade policy was discussed at a special meeting at the State Department June 21. Following is the text of a press release issued by the Department:

A delegation representing the California Commission on Interstate Cooperation, composed of California State officials, accompanied by representatives of the canning and fishing segments of the tuna industry and of the Council of State Governments, called on Under Secretary of State Herbert C. Hoover, Jr., and other officials of the United States Government on June 20 to discuss the situation which has arisen in the industry in California. Maurice C. Sparling, Chairman of the Commission, and Assemblyman Vincent Thomas, Vice Chairman of the Commission, headed the delegation. The delegation was accompanied by Representative Robert C. Wilson of the 30th Congressional District of California and Merrell F. Small, Administrative Asst. to Senator Kuchel.

In addition to representatives of the Department of State, representatives of the Departments of Interior, Commerce and Treasury were also present to meet with members of the delegation. Jack Martin, Administrative Assistant to the President, also attended the meeting.

Various related aspects of the tuna situation in California were discussed. The delegation presented information bearing on the matter and advanced a number of suggestions to deal with the situation. The Government representatives indicated that this matter is now under immediate and active study by the Executive Branch. It is expected that this study will be completed in the very near future.

The Delegation is planning to meet further with other agencies of the Government to consider the situation in the tuna industry in California.

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Tuna Toots Own Horn

Under the above heading comes the following report from Congressman Bob Wilson, representing California's 30th District (San Diego County) in Washington:

Washington is well aware of the tuna crisis in California because of the activities of aroused fishermen and their wives during the past few weeks. State Department officials, legislators, and key administration leaders have been softened-up over the past few weeks by one of the most widespread and effective letter-writing campaigns in history.

It is inspired by the Tuna Fishermen's Wives Emergency Committee, of San Diego and San Pedro. The wives appealed first to Sacramento, where the Governor took heed and appointed a special Commission on Interstate Cooperation which made haste for Washington to find a solution to the mounting imports of frozen tuna from Japan. The Commission, headed by Capt. Maurice C. Sparling, included in its membership San Diego's spokesman for the Tuna Clipper fleet, Harold Cary.

Riding herd on the Commission was a San Diego contingent of Tuna Fishermen's Wives, with Mrs. George Zeluff as spokesman. Others in the group were Mrs. Theodore Brown, Mrs. Franklin A. Diamond, and Mrs. Joseph Giacalone.

It is too early to tell the effectiveness of the letter-writing and the buttonholing, but nearly every responsible lawmaker or bureaucrat here has come to realize the seriousness of the tuna problem. With an import quota as a goal, I have been working for many months on this problem, and believe favorable government action will be forthcoming.

Tagging Salmon

Pink and silver salmon trailing "spaghetti" tags will be appearing in Puget Sound sport fishing catches during the next few weeks, the Department of Fisheries advised.

In a further effort to track the intermingled races of Puget Sound salmon to their streams of origin, as well as to plot their summer feeding movements and time of departure for the ocean, the Department's research staff has chartered the purse seine boat "Welcome" for a tagging study in the Tacoma area.

More than 1,000 young pink, silver and chum salmon have been captured in a fine mesh herring seine, pierced under the dorsal fin with either a numbered red identification disc or the new "spaghetti" type streamer tag. The latter type, made of yellow plastic, poses less interference during the growth of the fish.

A similar study using both young feeders and inbound adult salmon has been resumed for the fifth year at Bush Point using a reef net gear. Both projects are under the immediate supervision of Hans Jensen, senior biologist.

Previous experiments have shown that a large portion of the pink and silver salmon originating from the Puget Sound basin do not migrate to the ocean but remain in the inner sound throughout their 15-month saltwater feeding period. Chinook salmon exhibit less of a tendency to forage exclusively "inside." The project will aid in more precisely pinpointing the relative contribution of the major salmon-producing areas to the inside sport and commercial fisheries.

Bush Point data on the migration times and speed of adult salmon and their probable destination already is being used extensively in management of the commercial salmon fisheries during the fall runs.

World-Wide Survey

A proposal for a survey and appraisal of world agricultural, fisheries, and forestry resources in relation to world needs will be considered by the Food and Agriculture Organization at its November conference, according to FAO's annual report. The report is one of a series received from UN specialized agencies for consideration at the Council's 20th session opening July 5 at Geneva.

Two Tunaboat Sinkings

On June 27 the San Diego-bas 100-foot tuna clipper, *Northern Lig* exploded, burned and sank, and eight-man crew was rescued fi miles west of Point Descanso another tunaboat, the American Bo

William Hoss, of Winter Garde owner of the Northern Light, said t vessel was valued at $200,000.

The crew included David Ri Orval Benkosky, the engineer; Jes Reyes, Miguel Butchart, and Vale tine Villavicensio, all of San Dieg and Francisco Villavicensio, Jes Peralta and Miguel Sarabia, all Ensenada.

On June 13 reports reached S Diego that the 60-foot tunaboat *Kat ryn* burned and sank off Peru. T seven-man crew was saved. Accordi to a cable received by the vesse local insurance representative, C imo Cutri.

Cutri said the crew consisted both Americans and Peruvians wi Salvadore Cresci of San Diego captain and part owner. He said the were no details regarding the ac dent or how the crew was saved. T cable was sent from Paita, Peru.

The Kathryn had been operati in Peruvian waters for several mont for Sun Pacific, Inc., a San Die firm which has a fleet of U.S. tu boats in the South American area.

Territorial Waters

The International Law Commi sion, following instructions of t General Assembly of the United N tions, is currently considering at the seventh session convened at Genev subjects of extreme interest to t fishing industry—"Regime of t High Seas" and "Regime of the Te ritorial Sea." On the latter subject here are several points tentative agreed upon:

"1. The Commission recognizes th international practice is not u form as regards traditional li itation of territorial sea to thr miles.

2. The Commission considers th international law does not ju tify an extension of the territo ial sea beyond 12 miles.

3. The Commission, without taki any decision as to the breadth the territorial sea within th limit, considers that intern tional law does not oblige t states to recognize an extensi exceeding three miles."

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About This Issue . . .

WHAT to do about duties or quotas, or both, on Japanese imports of tuna continues to be the big problem in this industry. A little headway is being made toward settlement, but it is very little and very slow—see "The Japanese Import Situation" on page 3.

*

Our hustling U.S. Representative at Washington, Bob Wilson, is doing his best to help solve the above problem, according to "Tuna Toots Own Horn" on page 4.

*

The Tuna Research Foundation held a press conference in Los Angeles, June 28. According to its director, Edwin L. Morris, and the executive director of the California Fish Canners Association, Charles R. Carry, "Tuna canners are sympathetic to the fishermen, but the canners are caught in the middle; we're damned if we do, we're ruined if we don't!"

*

Basis for long term development of world-wide trade has been formulated by GATT—see "General Agreement on Tariffs and Trade" on page 10.

*

Always a lively subject is the one covered by A. L. Brosio, "Problems In Tunaboat Insurance" on page 13. Additional material along these lines will follow in later issues.

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Prawns Around Australia

By KEN KENNEDY

THE discovery of extensive prawning grounds may mean a new export trade in seafoods for Australia. Shipments of snap frozen prawns are being made to America; prospects for the trade are considered bright.

Australian prawns are similar to those found in most other parts of the world. All belong to the family *Penaeidae* although five different species make up 99% of the Australian catch. These are the Tiger, King, Banana, School and Greentail.

Stimulus to the prawning industry in Australia came four years ago, when for the first time, big catches were made off the New South Wales coast by the owner of a Danish seine boat. Previously prawn fishing had been confined to the rivers and sea estuaries.

Recent boost to the industry followed the discovery of larger and more prolific grounds in the southern waters off Queensland's semi-tropical coast line. Catches increased tenfold and the prawns were larger. Big operators became interested as it became evident that supplies would be great enough to support an export trade as well as satisfy the Australian market.

Main fishing grounds on the Queensland coast are centered in Moreton Bay, near Brisbane the State capital, and about 160 miles further north near the mouth of the Mary River, close to the city of Maryborough.

Although regarded almost with reverence by the gourmet, prawns in the past have not played an important part in the economic life of Australia's seaboard. Consequently little research into its habits had been carried out that would interest the commercial fisherman.

Now, however, government searchers are inquiring more close into the private life of the prawn they want to find out where the spawning beds are, where they trav and most of all where they go wh they disappear for no known reas from recognized trawling gounds.

Statistics on the prawning indu try also are hard to come by. Exact how much the industry is worth Australia today is not known. Queen land authorities admit frankly th they "have no idea" but all agr that future prospects of the indust point to much greater turnovers.

The success which has attended t post-war venture in marketing froz lobster tails in America, the Unit Kingdom, the British West Indies a Singapore augurs well for the Au tralian prawning industry. Mode snap freezing methods make it po sible to ship prawns long distanc and many prefer this seafood to t lobster tail.

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Report from Washington

Gleaned from the Nation's Capital by John Harms

UNA TROUBLES WORSEN.--The Federal government, by negotiating a big cut n the import duty on canned tuna, now is saddled with the even greater esponsibility of doing something to protect the tuna industry--according o Washington insiders. There is evidence here that not until the duty eduction was made did the seriousness of the situation really make an mpression on some high Administration officials.

The State Department, the outfit mainly responsible for the tariff ut, announces now that it is conducting an "active" study of the tariff oncessions made to Japan at Geneva last month. The fact remains that the oncessions have been made, are binding on the U.S., can't be rescinded, nd will go into effect September 10, 1955.

What the outcome of this "study" will be, is anybody's guess at his time. Since it is inconceivable the U.S. will back down on the agree- ent, it is believed here to be the responsibility of the State Depart- ent to recommend a different avenue toward assisting the industry to vercome the serious impact of expected increases in Japanese imports.

The solution to the tuna problem undoubtedly is a tough thing to ind. Here are some approaches being considered which may eventually be ecided upon and pushed through:

(1) The Japanese government may be persuaded to set reasonable xport quotas for tuna shipped to this country. This could be accomp- ished, but activity in this direction has not inspired much hope. The apanese set a quota for July, but it turned out to be higher than actual hipments made during the same month of last year.

(2) An international commodity agreement might be established for una. This is being done already on such commodities as wheat and sugar, nd works pretty well. Under such a plan, tuna export and import coun- ries would draw up an agreement making restrictions on the amount of tuna each country could export. The agreement, thus, would include not only he U.S. and Japan, but other countries as well. This would be a govern- ent arrangement.

(3) An informal agreement might be concluded with Japan, by which Japan voluntarily holds down its exports to some point lower than would prevail with no restrictions. For example, Canada voluntarily cuts potato exports to the U.S. when we have a surplus.

(4) The tuna industry might get together with the tuna industry of Japan and work out some sort of an arrangement between industries on the amount of tuna shipped here. There is some question, however, whether this would be legal because of our anti-trust laws.

(5) Congress might take some action to clear the way for direct relief of the industry. This might be in the form of subsidy, although nobody right now is considering that move. About the only bills now in the

committees handling fisheries legislation are those to boost the duty on tuna imports.

(6) The current legal battle of the Star-Kist company to overturn the duty on tuna in brine could result in overthrowing the entire Trade Act set-up--should the courts decide in the firm's favor. This could spur further action.

--o--

THE TARIFF CONCESSIONS.--The main tuna tariff concession the U.S. made to Japan at the recent Geneva conference of the General Agreement on Tariffs and Trade (GATT) was the duty reduction from 45 per cent to 35 per cent of the value of tuna canned in oil. This amounts, roughly, to a cut in duty of $1 per case. It can be expected to encourage a greatly increased importation of the Japan commodity.

The U.S. is the world's largest producer and consumer of tuna packed in oil. Nearly all tuna caught by U.S. fishermen or imported fresh or frozen is packed by the domestic canning industry. U.S. production has been rising ever since the war, and in 1954 hit a new high of about 215 million pounds. About a fourth of the 1954 pack was canned from imported tuna.

Even though 35% ad valorem duty is relatively high, it's expected to draw increasing shipments from Japan which supplies 90% of the relatively small amount of tuna in oil now coming into this country.

The concession on tuna packed in brine was limited in effect to promising to keep the duty at 12½% of the value on an aggregate quantity equal to 20% of the U.S. pack of canned tuna fish during the immediate preceding calendar year. This is a "rather" low duty, and will permit Japan to participate in future growth of the tuna market in the U.S. Fresh and frozen albacore tuna were "bound" free of duty.

--o--

RECIPROCAL TRADE.--The President now has the authority to cut tariffs 5% a year for the next three years. Congress has approved HR 1 which extends the Reciprocal Trade Act for another three years. Another important provision of this law is to permit the President to roll back to 50% during the next three years, of an import's value any duties above that figure.

The State Department is beginning plans for a new conference of nations which are members of the reciprocal trade agreement--the General Agreement on Tariffs and Trade.

--o--

TRIP-LEASING.--Odds were increasing at press time that Congress would approve a bill to bar the Interstate Commerce Commission from regulating "trip-leasing"--under which truckers haul perishable commodities, like fish and farm products, to market and then lease their vehicles to certificated truckers for a return haul of non-perishable commodities.

A Senate subcommittee of the Commerce Committee has held hearings on the ICC ban bill, S 898. Farm groups and representatives from fishery organizations appeared before the subcommittee in support of the bill.

The subcommittee was expected to approve the bill, and the full Committee probably will report it out. Actually, Congress may be slower

(Continued on page 21

hrimp Industry Being Studied

A nationwide survey of merchan-ing practices in the shrimp indus- has been launched by the A. C. lsen Company, marketing research n under Government contract with U.S. Department of the Interior.

The survey will be supervised by Fish and Wildlife Service which the $13,784, ten-month contract implementing provisions of the ltonstall-Kennedy Act, designed to romote the free flow of domestic-y produced fishery products in mmerce."

Research aimed at improving sales d distribution of shrimp products rough wholesale and retail market-g channels will be the principal ature of the survey. Consumer-pref-ence tests will be conducted in typi-l cities.

Contracts previously let by the ervice for economic research into e industry have resulted in the fol-wing activities: cost studies of rimp-vessel and shrimp packing-lant operations; a general study of rimp-vessel efficiency; work prac-ces on shrimp vessels and operat-g efficiency in shrimp processing lants; problems of primary shrimp marketing and ex-vessel sales.

Other aspects of the shrimp industry being studied by Fish and Wildlife Service specialists include the historical development of our domestic fisheries; potential fishery resources; demand for shrimp products; domestic and foreign markets; foreign competition; and differences between retail and fisherman prices. The objectives of these studies are: to reduce operating costs of vessels and plants through technical advances; to increase consumption through improved distribution, product quality, and merchandising; and to effect an output that will assure maximum total income.

The American shrimp industry—one of the most lucrative of all our commercial fishing enterprises—produces about 225,000,000 pounds of shrimp annually, valued at around $50,000,000, according to Fish and Wildlife Service estimates. The industry provides a livelihood for approximately 15,000 fishermen and contributes to the income of another 15,000 employees in shore establishments numbering around 600. Shrimp are distributed domestically by 1,500 wholesale firms and 170,000 retail stores.

More Alaska Salmon Research . . . McKernan to Juneau

AS a further step in the vigorous program for the restoration of depleted salmon runs in Alaskan waters, a second contract has been signed with the University of Washington for salmon research in the Territory, Acting Secretary of the Interior Clarence A. Davis announced.

The new $55,400 contract provides for expanded research under the Saltonstall-Kennedy Act on problems affecting the survival of salmon. It supplements an earlier $64,000 contract as well as the extensive Government program.

Salmon is Alaska's economic mainstay. The catch declined disastrously in 1953 as the result of an unknown disaster at sea. Secretary Douglas McKay promptly ordered conservation measures to maintain a healthy fishing industry for the Territory.

The salmon run improved in 1954 and is expected to increase further this year but more needs to be known about salmon before ultimate recovery of the fishery is assured. The two contracts, totaling $119,400, with the University of Washington provide for much of the needed research.

The work will be conducted at the University's Fisheries Research Institute under the supervision of its Director, Dr. W. F. Thompson. The first contract provides for a tagging program to ascertain where Alaska salmon go when at sea and the rate at which they are caught. Work on the marine life of salmon has been largely neglected in the past because of the high cost of sea-going research.

Certain phases of the salmon's life in fresh water are likewise not too well known. This is particularly true of the numbers of young salmon passing downstream each year, and of the physical and chemical conditions which affect their survival in lakes and streams. The second contract covers the investigation of these problems. In addition it provides for the further development of relatively cheap photographic counting methods to replace the costly weirs and their attendants now employed to enumerate spawning escapements.

Donald McKernan Appointed

The tagging contract will be administered by Clinton E. Atkinson, Chief of the Service's Pacific Salmon Investigations, headquartered at Seattle, Wash. The fresh-water research program will be headed by Donald L. McKernan, formerly of P.O.F.I., newly appointed Administrator of Alaska Commercial Fisheries at Juneau.

Dr. W. F. Thompson, who will exercise university supervision over both programs, is a noted authority on the life history and conservation of salmon, halibut, tuna, and sardines. He was the Director of the initial research work of the International Halibut Commission and the International Pacific Salmon Fisheries Commission. The rehabilitation of the halibut of the north Pacific and the sockeye salmon of the Fraser River are widely considered as outstanding examples of conservation.

The Saltonstall-Kennedy Act, which makes funds available for this work, is designed to strengthen the American commercial fishing industry as a whole. The legislation provides that an amount equal to 30% of duties collected under the customs laws on fishery products shall be transferred annually for three years from the Department of Agriculture to the Department of the Interior. Expenditures for any one year may not exceed $3,000,000. ★

GATT: General Agreement on Tariffs and Trade

An agreement embodying results of tariff negotiations involving Japan and 17 other countries, including the United States, was announced last month by the Department of State.

The agreement provides for Japan's accession to the General Agreement on Tariffs and Trade, and contains changes in tariff schedules of the United States, Japan, and other countries.

The tariff concessions granted to Japan by the United States cover a range of canned fishery products. The U.S. agreed to lower its tariff on canned tuna in oil (to 35%), canned clams (to 20%), and canned oysters (to 6c/lb.); and agreed to bind present rates on canned crab meat (22½%) and canned tuna in brine (12½%), on which an import quota is to be established.

State Department Explains

The State Department explains the concessions on tuna in brine, in part, as follows:

"The present rate of duty was bound at 12½% ad valorem on an aggregate quantity equal to 20% of the United States pack of canned tuna fish during the immediately preceding calendar year, as reported by the Fish and Wildlife Service."

The pack of canned tuna in 1954 is reported by the FAWS at 214,454,295 pounds, and a quota on tuna in brine in 1955 — if one were in effect—would amount to 42,890,859 pounds. Imports of tuna in brine in 1954 totaled 30,479,000 pounds, of which 28,114,000 pounds were from Japan.

The State Department says that the quota is to be applied to imports from all countries, but that the agreement gives no formula for establishing Japan's share of the total.

In terms of the dollar value of 1954 imports, canned tuna in brine was the second most important dutiable item on which the U.S. granted a concession. Imports of tuna in brine from all countries in 1954 were valued at $13,473,000.

The U.S. also agreed to bind the duty-free status of fresh or frozen albacore tuna, of which 1954 imports totaled $11,161,000. Other species of tuna will continue to enter free of duty, but their duty-free status was not bound by the agreement.

Concessions to Japan

Most of the concessions to Japan were granted in direct bilateral negotiations between Japan and each of the 17 countries which participated in the negotiations. Japan also obtained "certain additional concessions" from six countries in return for concessions granted by the U.S.

to those countries. The State Department explains that "these latter concessions granted by the United States were provided in order to expand concessions by third countries to Japan, in accordance with the intention announced by the United States to participate in possible triangular negotiations."

The Department also stated that "no concessions were granted which exceeded peril points, and all were scrutinized in accordance with the safe-guarding procedures for administration of the Trade Agreements Act, under which these concessions will be made effective."

The concessions granted by the U.S. and initially negotiated with Japan will become effective September 10, 1955, if by August 11 two-thirds of the contracting parties have voted favorably on a decision on Japanese accession to GATT.

U.S. concessions initially negotiated with third countries will not be made effective until the third country in question gives effect to its concessions to Japan, which may be on September 10 or later. Japan's concessions to the United States will be made effective September 10, assuring a favorable vote on accession. Among Japan's concessions to the United States is a binding of the duty-free status of canned tomato paste and puree and cottonseed oil used for packing fish for export.

In other tariff negotiations at Geneva, the United States completed arrangements for placing in effect the rate of duty on breaded fish sticks, fillets, and similar products not containing added oil. The increased duties are 20% ad valorem if uncooked and 30% ad valorem if cooked to any degree.

Tabulation of Main Items

Following is a tabulation of selected items on which the United States granted tariff concessions in the negotiations for the accession of Japan to GATT:

	Negotiating country	—Rate of Duty— Jan. 1 1955	Geneva 195 agreement
Swordfish, fresh or frozen, filleted, skinned, boned, sliced, or divided into portions	Japan	1½c lb.	1½c lb.
Canned tuna, in oil or in oil and other substances	Japan	45%	35%
Canned tuna in brine	Japan	12½%	12½%
Clams (except razor clams) and clams in combination with other substances (except clam chowder)	Japan	35%	20%
Tuna fish, fresh or frozen, whether or not whole: Albacore	Japan	Free	Bind fr
Scallops, except fresh	Japan	Free	Bind fr
Oysters, not in air-tight containers (except fresh or frozen other than seed oysters)	Japan	Free	Bind fr
Shellfish, n.s.p.f.	Japan	Free	Bind fr

una, Packed in Oil

The duty on this product was reduced from 45% to 35%.

The United States is the world's argest producer and consumer of una packed in oil. Nearly all tuna aught by United States fishermen r that imported fresh or frozen is acked by the domestic canning industry. The output of the industry as shown a large and persistent pward trend since the war and in 954 it amounted to a record-breaking pack of nearly 215 million ounds. About one-fourth of the 1954 ack was canned from imported fresh r frozen tuna.

United States imports of tuna canned in oil have been small in recent years in relation to domestic production. The change in duty on tuna, canned in oil, from 22½% to 45%, at the termination of the Mexican trade agreement, January 1, 1951, together with the lower rate of duty (12½%) on tuna canned in brine, led to the reduction in imports of tuna canned in oil and a shift to imports of tuna canned in brine. Imports of tuna canned in oil dropped from 36 million pounds in 1950 to less than 5 million pounds a year for each year since 1950, whereas imports of tuna in brine increased from less than one-half million pounds in 1950 to almost 30 million pounds in 1953. Over 90% of the imports of tuna canned in oil come from Japan. Peru and Portugal are other relatively small suppliers.

Tuna, Packed in Brine

The present rate of duty was bound at 12½% on an aggregate quantity equal to 20% of the United States pack of canned tuna fish during the immediately preceding calendar year, as reported by the United States Fish and Wildlife Service. The concession thus granted should permit Japan to participate in the growth of United States consumption of tuna fish which has marked the postwar years. In 1954, the United States pack of tuna, consisting entirely of tuna in oil, represented 87% of the total of the apparent consumption of tuna fish in the United States.

Tuna in brine is a relatively new product developed by Japanese exporters in response to the change in duty on tuna canned in oil from 22½% to 45% at the termination of the Mexican trade agreement effective January 1, 1951. There is very little domestic production of tuna in brine. By the end of 1954 imports of canned tuna in brine represented about 12.6% of the total of apparent United States consumption of tuna fish.

Cotton Fish Nets and Fish Netting

In this agreement, the rate of duty on fish nets valued at 50 cents or more per pound was reduced from 30% to 25%. A reduction in the rate of fish nets valued at less than 50 cents a pound and all cotton fish nettings from 40% to 25% was also granted in this agreement.

United States production of cotton fish nets and fish netting is estimated at over 2½ million pounds annually. Four to six firms produce about 90% of the domestic output. In recent years both domestic and imported cotton nets and nettings have been replaced somewhat by rayon products and production of nylon nets is now increasing.

Imports have declined from nearly 900,000 pounds in 1950, to more than 500,000 pounds in 1954. In 1954 imports were about equally divided between fish nets valued at 50 cents or over per pound, and other fish nets and netting. Japan supplied about three-fourths of the total imports.

Fresh or Frozen Tuna

The most important free list binding in terms of volume of trade was the binding of fresh or frozen albacore tuna.

United States consumption of tuna has shown a persistent upward trend over the years, increasing from 223 million pounds (round weight basis) in 1939 to nearly 560 million pounds in 1954. Between these years both imports and the domestic catch have increased; domestic landings have increased more than imports of fresh and frozen tuna in absolute amount but they have increased less than imports of fresh and frozen tuna in relative terms. The United States catch of all species of tuna amounted to approximately 322 million pounds in 1954 while imports of fresh and frozen tuna totaled about 124 million pounds and canned fish 113 million pounds.

Albacore usually makes up the bulk of United States imports of fresh and frozen tuna. Albacore is generally packed as white meat tuna and brings a higher price in the United States market than imports of other species. The domestic albacore fishery has been sporadic and uncertain. In 1954 the United States catch of albacore appeared to have been about 24 million pounds, as compared with about 53 million pounds in 1952 and a record catch of 73 million pounds in 1950. With these wide variations in the domestic catch of albacore and the constantly growing consumption of tuna, substantial imports of albacore will be needed to enable domestic firms to schedule more even canning operations and provide steadier employment.

Albacore represents a high percentage of the Japanese catch and the United States has been Japan's most important market for the product. Of total exports of frozen tuna amounting to about 114.7 million pounds in 1954, albacore represented 64.4 million pounds of which 61.1 million pounds were exported by Japan to the United States. *

Exploratory Cruise

The FWS Vessel *John N. Cobb* left Seattle June 2 3and is scheduled to return to Seattle on or about September 20, 1955. It will do exploratory and experimental fishing in the offshore waters of the North Pacific and Gulf of Alaska at a series of predesignated stations extending from off Northern Vancouver Island to off Unalaska Island, Alaska.

Objectives: To obtain informatin on the high-seas distribution, abundance, life history, racial composition, etc., of North Pacific salmon in the Gulf of Alaska and adjacent offshore waters; to catch salmon on the high seas in condition for tagging and to collect salmon from various localities for studies of racial determination, size composition, age analysis, and other related data; and to make oceanographic observations in connection with the fishing activities.

Methods: Primary fishing gear will be nylon gill nets of various mesh sizes designed to catch both mature and immature salmon. A series of east-west transects will be run across the Gulf of Alaska with fishing stations at 60-mile intervals. Special attention will be given to an area southeast of Kodiak Island which is reported to be rich in plankton. A limited amount of experimental fishing will be done with surface long lines and trolling gear in addition to the gill nets.

Information obtained will be coordinated with that of other agencies carrying out research on North Pacific salmon.

Research Ship Completes Albacore Cruise

The fishery research vessel *Hugh M. Smith* returned to its Pearl Harbor base on June 14, completing a 6,000-mile tuna scouting cruise that began May 2. According to O. E. Sette, director of the Pacific Oceanic Fishery Investigations, the primary mission was to discover whether albacore tuna are present in important quantities in the waters north and northeast of the Hawaiian Islands in the early summer and how the pattern of their distribution compares with that revealed by several similar cruises made last winter.

This latest survey by the *Smith* was carried out simultaneously with a cruise by another Fish and Wildlife Service vessel, the *John R. Manning*, in the area northwest of the Islands and with a survey by the California research ship *N. B. Scofield* off the West Coast.

In carrying out its scouting mission, the *Smith* fished with tuna longline (flagline) gear at 30 locations, extending as far as 45 degrees north latitude, and intensive trolling was carried on between longline stations. The *Smith* caught only one albacore in this area which contained much larger numbers last fall and winter. This is similar to the experience of the *Manning* which recently returned from a similar survey farther west.

The scientist in charge of the *Smith* cruise, fishery research biologist Richard S. Shomura, reported that good concentration of bigeye tun was found about 700 miles northeas of Hawaii on the return voyage. Fif teen of these tuna ranging in weigh from 80 to 100 pounds were tagge and released after capture on th longlines. The area of capture is ou side the scope of the local sampa flagline fishery, but it is hoped tha some of the market fish may turn u in the Hawaiian commercial catc and thus provide important informa tion on the migrations of this locall important food fish.

SEATTLE HARBOR

The fifth edition of nautical chart 6449 covering Seattle Harbor and Lake Washington has just been published by the Coast and Geodetic Survey, U.S. Department of Commerce.

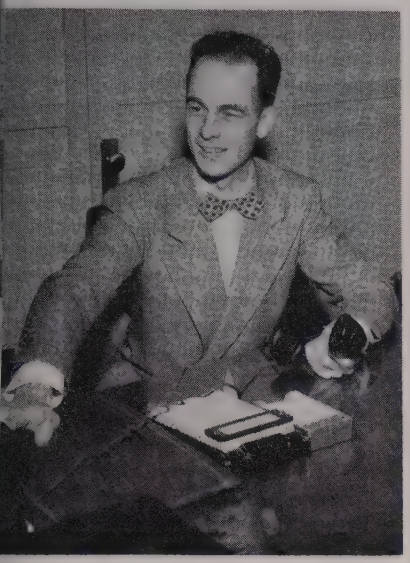
Channel depth of Duwamish River and Lake Washington Ship Canal are included in tabular form on the new edition. Waterfront details of the canal and adjacent bays from Puget Sound to Lake Washington have been extensively revised from recent aerial photography.

Seattle is the largest and most important city in the Pacific Northwest and handles, almost exclusively, the commerce with Alaska. The Port of Seattle includes an outer and inner harbor. Lake Washington, a large body of fresh water, is located just eastward of Seattle.

Hydrographic and topographic sur veys by the Coast and Geodetic Sur vey with revisions and additions from other sources were used in the com pilation of the chart. Cable, pipline restricted, anchorage and prohibite areas are indicated in purple. Light beacons, buoys, and dangers to navi gation are corrected for informatio received to date of issue.

Roads, railroads, and other cul tural features are shown on the char including the street patterns of Sea tle and adjacent localities. A numbe of important beaches and recrea tional areas are also indicated. Cop ies of the new edition at $1 each ar distributed by the sales agents, dis trict offices, and the Washington of fice of the Coast and Geodetic Sur vey.

Many Problems Encountered In TUNABOAT INSURANCE



By A. L. BROSIO

BEING associated with the Pacific Coast fishing industry through the insuring of a number of tunaboats, we know there are many problems of common interest to boat owners, surveyors, skippers, engineers and others.

The owners of our fishing boats perform a valuable service—supplying a basic and important source of food to the nation—but they do not always succeed in making a reasonable profit. The "fixed" expenses inherent to boat ownership are very large, and much fish must be caught each year to pay these expenses before any profit is obtained. One of the largest items is the cost of insurance. A reduction in insurance losses would be reflected in reduced premiums, with a corresponding improvement in the earnings of boat owners.

A good underwriter is not merely interested in selling insurance, with no regard for the problems of the insured. Our purposes can best be accomplished by continually improving the quality of our risks, to the mutual benefit of insurer and insured. For example, some of the subjects worthy of careful consideration include:

Statistics relative to losses and causes thereof; lessons learned from previous or current losses; new developments and ideas conducive to greater safety; information on tug boats and repair facilities available at various ports; discussion of insuring clauses contained in fishboat policies; trend of losses, rates, etc.

Trend Shows Improvement

Insurance on tunaboats has been a continuous problem to all three parties involved in the deal: 1, to underwriters, because of lack of spread, large and frequent losses; to brokers—markets often thin or non-existent; to boat owners—rates high.

Many problems can be solved to the mutual advantage of all parties by cooperative effort. Owners and their associations, crews and their labor unions, brokers, surveyors, the Navy and the Coast Guard . . . all can contribute materially to the constructive steps already taken and further steps under consideration.

A trend for the better seems to be evident. Some rate reductions have already been possible, particularly in connection with experience credits to well-maintained boats which have been able to show improved loss records. In addition to lower premiums, boats have benefited through fewer breakdowns and a decrease in the number of broken trips. These improvements all contribute to increased earnings.

Fire Is Still the No. 1 Hazard

An analysis of the past ten years shows that fire accounts for about 40% of the losses. Thus 40% of the insurance premiums paid by the fishing industry is in reality paid for fire protection. We are confident that fire losses can be substantially reduced, with a resultant substantial saving to the owners.

Although great advances have been made in the elimination of conditions which lead to fires and in the installation and use of fire control equipment, until recently no system of fire detection entirely suitable for fishing vessels was available. More recently, an electronic device of considerable promise has been developed. Rather than relying on the detection of heat resulting from a fire already in progress, this new device detects the fire by "seeing" the flames as the fire begins, at considerable distances.

Although this unit is quite simple and relatively inexpensive, its action seems to be much more reliable than that of other devices that we have tested. Units are currently being installed in two boats of the tuna fleet for tests under actual operating conditions. Additional items bearing on fire control are also undergoing study at the present time and reports will be issued later. *

Scouting Cruise North of Hawaii

Ideal fishing weather and sea conditions, but a seasonal low ebb in albacore tuna abundance was the gist of the report made by Wilvan Van Campen, chief scientist, aboard the U.S. Fish and Wildlife Service research ship *John R. Manning*. The vessel returned to its Pearl Harbor base on June 7, after slightly more than a month of extensive fishery exploration in waters northwest of Hawaii.

According to Donald L. McKernan, acting director of the Pacific Oceanic Fishery Investigations, the cruise was one of a series being made at various seasons to test the commercial fishing potential of the area for albacore, the most valuable species of tuna.

The *Manning* sailed from Pearl Harbor on May 2, stopped at French Frigate Shoals, Lisianski, and Midway islands for a study of the potential tuna live-bait present in the lagoons, then fished a series of eight longline stations north on the 175th west meridian to the vicinity of 40 degrees north latitude. Neither longlining nor intensive trolling revealed any commercial concentrations of albacore on this section, and a long trolling run to the southeast followed by another series of longline stations along 165 degrees west longitude produced similarly negative results.

Indications are that the albacore which earlier cruises have shown to be present in this area during the winter may migrate elsewhere en masse in the summer, perhaps to the American and Japanese coasts, where there are active albacore fisheries at this season.

PROGRESS & PRODUCTION

New Multi-Purpose Product

A new marine product, "All-Seal," is guaranteed by its manufacturer, a half-century old concern in the marine field, to give outstanding performance as a seam filler, sealer, or adhesive under the toughest service conditions.

After a 24-hour drying period, "All-Seal," a water-dispersed chemical rubber, becomes completely waterproof, unaffected by sunlight, blistering heat, or extreme cold, and is absolutely unharmed by gasoline or oil.

"All-Seal" comes in white, black, and mahogany in a plastic applicator bottle, priced at $1.50. Manufactured by the Stay-Tite Products Company, 9400 Steinway, Cleveland 4. Ohio.

Hard Starting in Gas Engines

The problem of moisture condensation in the fuel system, the major cause of hard starting, stalling, fuel system rust and shortened life in small gasoline engines, is said to be solved by a new gasoline additive called Cristy Super-Start Drygas.

This product has a "homogenizing" effect on the moisture droplets which collect in fuel systems. In addition, rusting is practically eliminated, and other ingredients prevent gasoline gums from forming. Write Cristy Chemical Corp., 21 Putnam Lane, Worcester 4, Mass.

New Marine Catalog

The Gray Marine Motor Company of Detroit announces a new general catalog; its 50 pages, indexed for reader convenience, contains detailed engine data covering Gray's current line of 31 gasoline models, from 16 to 200 hp, and four Diesels, 30 to 135 hp.

In addition to engine data, much other interesting information is supplied by photographs, drawings and specification tables—a total of 149 illustrations. Optional accessories and equipment are also covered, including fresh water cooling systems, temperature controls, water-cooled exhaust elbows, power take-off, and many others.

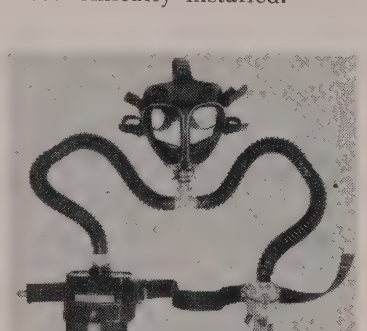
Fiberglas Insulation

Light weight navy board insulation with a glass cloth facing which makes possible savings of much deadweight on boats is now commercially available, Owens-Corning Fiberglas Corporation has announced.

The new product, designed for insulation of bulkheads, hulls and other spaces aboard ship, supplies heat and cold insulation thus preventing heat loss and condensation and adding to crew comfort.

The company lists these advantages for the new product: light weight, higher thermal values because of its finer fiber, easier to install, conforming to bends, brackets and arms.

The navy board is also designed for shell and overhead insulation in living spaces, mess, ward, radio, engine and plotting rooms, galleys, etc. It is durable, puncture resistant, rot resistant and odor free. Eliminating need for metal sheathing, it is quickly and economically installed.



Air Transfer Mask

To meet the need for continuous respiratory protection in movement from one air connection to another is the Acme Full-Vision Transfer Mask.

This new equipment uses compressed air when wearer is connected to such supply, and, with no action on his part, transfers to the canister for protection if (1) the compressed air supply is shut off; (2) the hose is cut or kinked; or (3) wearer wants to move to another location or compressed air plug-in station. Write Acme Protection Equipment Company, 1201 Kalamazoo St., South Haven, Michigan.

Aerator for Minnow Buckets

A new model aerator for minnow buckets has been designed to fit all sizes and to keep minnows alive on long trips.

The Aerator King aerates water and provides effective air distribution and constant water filtration. Plugs into any 6 or 12-volt unit, or may be used with a 110-volt transformer. Also available in larger sizes for use by bait dealers, aquarium owners, etc. Write Exact Machine Works, 3233 W. Lake St., Chicago 24, Illinois.

Plastic Spray

A clear plastic spray, which is named "Krylon" and comes in Aerosol dispensers, is being widely used to protect motors and electrical systems against water and dampness.

Mechanics and dealers have found that by spraying the entire motor and housing with Krylon crystal-clear all parts and protected against water and corrosion and last considerably longer than those that are not sprayed.

Enterprise Ad Man

Michael E. Conway has been appointed advertising manager of Enterprise Engine & Machinery Co., subsidiary of General Metals Corporation, San Francisco. Prior to joining Enterprise, Mr. Conway had been advertising manager of Pacific Car Seattle. He is a graduate of the University of Wisconsin, and while in Seattle served as President of the Chapter of the National Industrial Advertisers Association.

TIDES OF THE INDUSTRY

iberglas Marine Sales

A. E. Kincaid, Jr., has been pointed Manager of Marine Sales Owens-Corning Fiberglas Corporion with headquarters in Washingn, D. C. He will visit all shipyards d design agents throughout the untry, having been working with berglas products in the marine dustry since joining the company 1941.

ew Directory for Canners

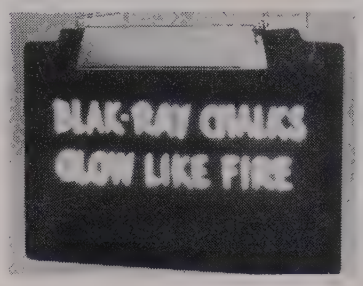
The 1955 Canners Directory, comled and published by the National anners Association, has just come f the press. The 47th of these anual compilations, the new Directory nsists of 250 pages, bound in stiff nen covers. Canning firms and their eadquarters addresses are listed by ates along with plant locations and roducts packed in each.

Membership in N.C.A. is indicated nd the Directory also lists Associaon officers, staff, branch offices, irectors, Administrative Council and ommittee members for 1955. Also given are the membership of the National Food Brokers Association and Canning Machinery & Supplies Association. The book features an over-all commodity index covering 594 different canned products.

U.S. Is Second in Fishing

The United States is second among the fish catching nations of the world, Japan being the first, according to the "Yearbook on Fishery Statistics," published by the Food and Agriculture Organization of the United Nations, Rome, Italy.

The actual figures show that Japan catches 4,577,000 metric tons a year (1953 returns) compared with the United States landings of 2,385,000 m. tons. The Japanese are now catching more fish than they did before World War II, having fully recovered the ground lost in the period from 1944-1949. During those years their catch remained well under 3,000,000 metric tons a year, the lowest being 2,035,000 in 1945.



Fluorescent Messages

Glowing messages can now be put across with more effectiveness with the use of a new fluorescent Visual Aid Kit.

It's the newest, most exciting way to present map studies, charts, graphs, etc. The sharp, eye-compelling colors of Blak-Ray have an intriguing third-dimensional effect that demands interest.

For further information write Ultra-Violet Products, Inc., 5114 Walnut Grove Ave., San Gabriel, California.

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Rates for Pacific Telephone's ship-to-shore telephone service are very low. If, for instance, you are 150 miles west of the Farallons, you can talk to someone in San Francisco for three minutes for only $1.00, plus Federal Tax. And there is no monthly charge for service.

For more facts on ship-to-shore telephone service contact Pacific Telephone in your nearest large port city and ask for our free booklet, Ship Telephone Service.

Pacific Telephone

A Hopeful View

A San Pedro tuna cannery executive recently predicted that American and Japanese fisheries interests will work out a solution to the present baffling tuna problems. Nick Trutanic, vice president of Star-Kist Foods, stated:

"I have just returned from a lengthy visit to Japan where I conferred with government authorities and representatives of every phase of the tuna industry from packers to fishermen.

"These men realize, as well as we do, that the California tuna industry is in a condition which eventually will affect the Japanese. They want to sit down with our tuna industry representatives and discuss fully and frankly the joint problems of both the Japanese and American fishing fleets."

Better Living for All

Boating's part in the better way of living now enjoyed by Americans is being honored in a new illustrated book, "Everything *and* the Kitchen Sink."

This 160-page book tells the story of industrial progress in the United States during the past 100 years and honors Crane Co., now celebrating its centennial. In a chapter called "Leisure and Creativeness," the book says:

"With leisure and money to spend, Americans have developed the most widespread cultural and recreational complex ever known . . . More than 20,000,000 fishing licenses are issued each year, and more than 6,000,000 boats cruise the waters of the nation."

Today's world has been created by dynamic men in industry who used their initiative, ingenuity and foresight to make things happen to benefit the people, the book points out.

Tomorrow's world, too, forecasts the book, will be the result of continued achievements of these men who get things done, and they will bring Americans a new golden age of rich and rewarding living with "Everything *and* the Kitchen Sink" available to the average man and his family.

Sally Emilie Silva—16-year-old grandaughter of one of the founders of Sociadade Espirito Santo is the daughter of Mr. and Mrs. Andrew Silva.

Isabel's Fiesta

Commemoration of an event that had its founding in the little village of Alemquer, Portugal, more than 600 years ago was enacted last month in the Portuguese community of Roseville, San Diego, California.

President of the event was Captain Edward S. Varley, managing owner of the tuna clipper Sun Victoria. Usually the daughter of the president reigns as Queen of the event annually. Captain and Mrs. Varley, however, were blessed with three sons and no daughter. For the first time a Queen outside the president's family was chosen.

She was 16-year-old Sally Emilie Silva, granddaughter of one of the founders of the Festival of the Holy Ghost in San Diego. The Queen is the daughter of Mr. and Mrs. Andrew Silva. King of the boat was Jimmy, youngest son of the Varley's. By coincidence the Queen's initials are S.E.S., first letters of the three words naming the event, Sociadade Espirito Santo.

Plans for Fishermen's Fiesta

Lively color designs to be used in decorating the fishing fleet are appearing on drawing boards at Harbor Junior College as students develop ideas for the Fishermen's Fiesta to be held in San Pedro, October 1-2.

"Toyland Parade" has been chosen as the theme for the procession of boats taking part in the seagoing pageant. This year's theme was selected for the variety of motifs it offers, like Jack in the Box, Punch and Judy, the Wooden Soldier and others.

Many of the fishermen in the 1954 fiesta used students' ideas in decorating their vessels and will follow the practice again this year, according to Bill Bullock, fiesta chairman.

Fishing Boats of the World

Design, construction, engines, gear and equipment of scores of fishing boats from dozens of different countries are discussed comprehensively in *Fishing Boats of the World*, a 650-page book recently published by Arthur J. Heighway Publications Ltd., Ludgate House, 107 Fleet St., London E.C.4, in cooperation with the Food and Agriculture Organization of the United Nations (FAO), Rome, Italy.

The book ($12.50 a copy) contains some 600 illustrations and is based on 70 papers presented at the FAO International Fishing Boat Congress held in Paris and Miami in 1953. In total some 140 naval architects, boat builders, engineers, gear manufacturers, and other experts have contributed.

Dealing entirely with fishing boats, the book is the most comprehensive volume covering this field. Some idea of its scope can be obtained from the fact that in the opening chapter on boat types, short distance, surface, bottom and combination fishing are each dealt with extensively, followed by a section on research vessels, and sections dealing with materials, fish holds, and economics. In the course of this chapter, the hull shapes, characteristics, qualities and defects of boats operating in the United States, India, Pakistan, France, Germany, Iceland, Norway, Sweden, Belgium, Denmark, Italy, Japan, Canada, Britain, Ireland, and other countries are critically examined in a number of articles by naval architects and other experts. The papers are followed by a lively and controversial discussion on the subjects concerned.

There is equally good coverage in other chapters of the book on such subjects as naval architecture, safety at sea, engines, deck gear, and factoryships. Under the heading of naval architecture, problems of tank-testing techniques, stability criteria, loading and change of trim, behavior of trawlers at sea, and so on, are discussed.

EBB 'n FLOW

len Leaves Pacific alibut Commission

Edward W. Allen, Seattle attorney, s resigned as a member of the ternational Pacific Halibut Comssion. He has played an important e in the development of cooperan between nations in the conservan of high seas fishery resources; will continue to represent the ited States in the tripartite Interional North Pacific Fisheries Comssion.

Allen served on the Halibut Comssion—the oldest of the internanal fisheries commissions — since 32. During 14 of those years he as also a Commissioner on the Inrnational Pacific Salmon Fisheries ommission. The work of these Comissions has been signally successl, much of it due to Allen's active terest and leadership. As his reacement on the Halibut Commison, Captain Mattias Madson of Setle has been appointed.

loore on Senate ommittee

Milo E. Moore, formerly Director Fisheries for the State of Washgton, has been appointed Technical ssistant to the Senate Committee on terstate and Foreign Commerce by e Chairman of that Committee, Senor Warren G. Magnuson of Washgton.

Mr. Moore, in recent years, has ad considerable experience directg fishery rehabilitation projects in arious parts of the world including aly, Greece, Japan, Formosa and outh Korea. His new duties primary concern matters pertaining to sheries on the Pacific Coast.

anned Foods afe After Bombing

Canned foods are generally safe fter exposure to an atomic blast, ccording to George B. Morrill, Jr., resident of the National Canners ssociation. He reported on results f exposures of 25,000 canned food amples to the nuclear explosions eld in Nevada in May.

Tests of the exposed canned foods re still in progress and full details must await completion of reports now being prepared by food technologists, but Mr. Morrill was able to report on preliminary observations.

"It can be stated with considerable assurance," he said, "that the canned foods tested would be suitable for emergency feeding. In residential structures, 4,700 feet from Ground Zero, canned foods in both tin and glass came through the test relatively better than the houses in which they were stored, and were found substantially free of radioactivity. When the containers were physically intact the food was found acceptable for use. The only failure of packages was due to gross dislodgment from cupboards or shelves or from flying missiles; no containers burst from blast pressures. Generally, the foods stored in basements fared better than those in kitchen cabinets."

Two FWS Changes

Stewart Springer has been appointed as Chief of the Exploratory Fishing and Gear Research Section, Branch of Commercial Fisheries, replacing Donald E. Powell who has transferred to Seattle to take charge of the Service's Exploratory Fishing Station there.

Mr. Springer was formerly in charge of the Exploratory Fishing and Gear Research Program, based at Pascagoula, Mississippi. Operation of the vessel *Oregon* from this station in the Gulf of Mexico resulted in the recent discovery of a tuna resource there and deep-water red shrimp grounds. Mr. Springer has been with the Service for about seven years. Prior to that time he was engaged in various fishery enterprises and brings a wealth of experience to his new position.

U.S. Tariff Commission

The term of Commissioner Lynn Ramsay Edminster, a member of the Tariff Commission for 13 years, expired on June 16. He was first appointed to the Commission in 1942 and served as its vice chairman from 1942 to 1953. A successor has not been nominated.

The present membership of the Commission consists of Edgar B. Brossard, chairman; Joseph E. Talbot, vice chairman; and Walter R. Schreiber, Glenn W. Sutton, and J. Weldon Jones.

Pacific Halibut Season

The International Pacific Halibut Commission terminated the first fishing season in Areas 2 and 1B at 6:00 a.m., June 5, 1955, and these areas will be closed to halibut fishing until the commencement of the second fishing season.

The second fishing season in Areas 2 and 1B will commence at 6:00 a.m. July 27 and terminate August 3.

Area 2 includes all convention waters off the coasts of the United States, Alaska and Canada between Area 1B and a line running through the most westerly point of Glacier Bay, Alaska, to Cape Spencer Light and thence south one-quarter east.

Area 1B includes all convention waters between a line running northeast and southwest through Heceta Head Light and a line running northeast and southwest through Willapa Bay Light on Cape Shoalwater.

Al Day Honored

In recognition of his long public service, the FWS staff and many friends of A. M. Day, former Director of the Service, met in the Interior Department auditorium last month to honor him on the eve of his departure to take up his new duties with the Arctic Institute of North America.

One of his co-workers, Stanley Young, who has been on the staff of FWS for many years, acted as Master of Ceremonies. Those who spoke honoring Mr. Day were Director John L. Farley, Joseph Flakne, Program Director of the Arctic Institute of North America, Henry Nolda, National Vice President of the National Federation of Federal Employees, and Charlie Jackson of NFI, who formerly served with Mr. Day when they were both Assistant Directors of FWS. Many beautiful gifts were bestowed upon Al and Mrs. Day.

Analysis of the

HAWAIIAN LONG-LINE FISHERY

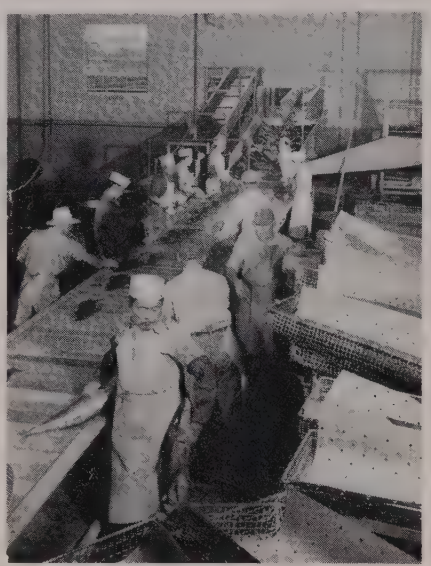
By TAMIO OTSU

THE long-line fishery of Hawaii catches the deep-swimming pelagic tunas and spearfishes in the coastal and offshore waters of the Hawaiian Islands. Having had its beginning in 1917, when a Japanese immigrant introduced the Japanese technique of fishing subsurface levels in waters off Waianae, Oahu, this fishery has rapidly developed into a major source of fish in the Territory; its landings are valued at over a million dollars annually. Following is a summary of our research findings over the last few years.

1. The long-line method is presently the only means of efficiently catching the subsurface resource of tunas and spearfishes in the vicinity of the Hawaiian Islands.

2. The tuna landings have steadily increased following a period of restricted fishing during World War II.

Mr. Otsu is Fishery Research Biologist, POFI, U.S. Fish and Wildlife Service, Honolulu, T.H.



3. The species composition of the tuna landings have changed from predominance of yellowfin to one of big-eyed during the postwar years.

4. There is a marked seasonal variation in abundance among the tunas, with yellowfin occurring in greater numbers during the summer and the big-eyed during the winter months. There is less variation in seasonal abundance among the spear fishes, with the black marlin generally more abundant during the summer months and the striped marlin in the winter.

5. This seasonal variation in species composition is dependent upon the movements and local abundance of the fish. Both of these factors may be influenced by any of a number of environmental factors: e.g., sea temperature is frequently believed to be important, however, the available data are too scanty to be conclusive.

6. There is a possibility that the

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urrence of yellowfin in greater nbers during the summer is re-d to spawning.

. The possibility also exists that lowfin are responding to a slightly re abundant food supply during summer months in island waters.

3. The average total catch rate tch per 100 hooks fished per day) about 3.0, which compares favor-ly with the Japanese catch in their me waters but falls below their ch in various tropical and sub-pical areas.

9. The amount of effort expended the fleet from year to year did t vary significantly during the ars surveyed.

10. There appears to be a seasonal ifting of the more productive fish-g grounds. Windward waters are id to be more productive during e winter months.

11. Noticeable variations in boat fficiency may be attributed to dif-rences in the productivity among rious areas, since certain of the w-catch boats fish exclusively in e area regardless of productivity.

12. The long-line fishery catches llowfin over 90 pounds in weight, th the bulk of the catch falling tween 100 and 160 pounds. The g-eyed are somewhat larger, with e bulk falling roughly between 100 d 200 pounds. Yellowfin average ound 140 and the big-eyed around 0 pounds.

13. The sex ratio among long-line-ught yellowfin and big-eyed tuna ffers significantly from 50:50 (or :1) with males predominating in oth species.

14. There is a possibility that yel-wfin spend their first year or two the surface before descending to bsurface levels. This may be a asis for a method of predicting the oundance of subsurface yellowfin few years in advance. *

una Fishing Cruise Around Line Islands

A commercial fishing vessel, the *ommonwealth*, under charter to the .S. Fish and Wildlife Service for urpose of testing the commercial otentialities of the central Pacific quatorial tuna grounds, returned to onolulu on June 17, announced O. . Sette, director of the Pacific Oce-nic Fishery Investigations.

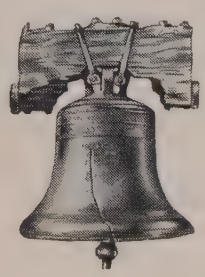
Since its departure from Honolulu n May 7, the 112-ton vessel had fished longlines and trolled for yellowfin tuna around Kingman Reef, Christmas, Fanning, Washington, and Palmyra islands of the Line Islands group, which straddle the Equator about 2,000 miles south of Hawaii. This area has been established as a promising yellowfin tuna fishing ground by intensive exploratory and experimental fishing by Honolulu-based FWS research ships during the past several years.

The purpose of the most recent cruise, according to fishery research biologist Heeny Yuen, chief of the scientific field party aboard, was to fill in the details of the picture of seasonal and annual changes in the abundance of tuna in Line Islands waters and to tag tuna for migration studies.

The crew of the *Commonwealth* set from 20 to 30 baskets of 11-hook longlines (a total of 220 to 330 hooks) at 11 locations around the islands, and spent an additional 13 days in trolling. The best longlining was found about 5 miles south of Fanning Island, where 21 yellowfin were taken, or 6.3 per 100 hooks fished, a good catch rate for this type of fishing. At the other locations the abundance of tuna was considerably lower, averaging 0.6 fish per 100 hooks. In addition to yellowfin, 6 bigeye tuna, 3 marlin, and 2 skipjack were taken on the longlines.

Trolling with six lines for 13 days produced a catch of 100 yellowfin. The best fishing was found at Palmyra, where 20 fish were taken in one day, and at Kingman Reef, where a day's trolling yielded 24 yellowfin. Besides the tuna catch, 135 wahoo (ono) were taken on the trolling lines. These fish were measured, weighed, and examined for indications of spawning activity.

Of the yellowfin tuna catch, 106 fish were tagged and released. Length measurements of these tuna were recorded, and any recaptures, either in the Line Islands or elsewhere, will provide important evidence of the growth rate of this species as well as of its migrations.



A bullet sang through her sleeve

ON THAT DARK DAY at Antietam, when Blue and Gray fought to a bloody standstill, a bullet sang through her sleeve and killed the wounded soldier she was caring for.

And later, at Fredericksburg, where the dying lay frozen to the ground, a shell fragment tore her clothing but could not frighten her from working while the battle still raged on.

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Sette Transferred to California, Dr. Tester Heads Up POFI

O. E. Sette, Director of the Fish and Wildlife Service's Pacific Oceanic Fishery Investigations in Honolulu, T. H., since 1948, has been transferred to the west coast to head an important new oceanic research project, Acting Secretary of the Interior Clarence A. Davis announced in Washington, D. C.

Mr. Sette was succeeded in Honolulu on July 1 by Dr. Albert L. Tester who, as senior professor of zoology at the University of Hawaii, has been in charge of the University's fishery education and research program since 1948.

The new oceanic research will begin on September 1 and will be based at Stanford, Calif. Under the direction of Sette, the unit will conduct a study to relate fishery production to climate and ocean conditions. The relations between variations in ocean circulation and the sudden and as yet unexplained appearances and disappearances of commercial fish stocks from the customary fishing grounds will be studied on a broad scale. The work will be of a pioneering nature in three fields of science — fishery, biology, oceanography, and meteorology.

The ultimate purpose of the project, according to Service Director John L. Farley, is to discover the natural laws governing fluctuations in abundance of our great commercial fisheries. "Such laws, if they exist and are discovered," he said, "would probably have a general application and as profound an effect on world progress in fishery science as did Newton's laws of motion in mechanics or Ohm's law in electricity."

The Service Director explained that the need for such a study has been demonstrated by the fact that many of our important sea fisheries are subject to large, unexpected and sometimes catastrophic failures. Recent advances in oceanography and meteorology, however, suggest that the abundance of fish may be greatly affected by large-scale changes in the weather pattern. If the study of oceanwide events, as they may be related to worldwide weather fluctuations, discloses the causes of major fishery fluctuations, then it may be possible to predict future fluctuations.

Mr. Sette has been selected to head the new project because of his extensive experience in both fishery and oceanographic studies. He has been with the Fish and Wildlife Service and its predecessor agency, the Bureau of Fisheries, since 1924. Director of the P.O.F.I. research since 1948, Mr. Sette recently returned from Italy where he served as one of the United States delegates to the International Technical Confernce on the Conservation of the Living Resources of the Sea.

Dr. Tester, who becomes the new director of the Pacific Oceanic Fishery Investigations, was born in Toronto, Canada, and acquired United States citizenship in 1954. From June 1931 to August 1938, he was associated with the Pacific Biological Station of the Fisheries Research Board of Canada. Since joining the University of Hawaii in 1948, Tester has worked closely with the P.O.F.I. staff.

The P.O.F.I. program was authorized by the 80th Congress to conduct fishing explorations and necessary related oceanographical, biological, technological, statistical, and economic studies to insure maximum development and utilization of the high seas fishery resources of the Territories and island possessions of the United States in the tropical and subtropical Pacific Ocean and intervening areas.

World Fish Catch Up

A substantial increase in world fish production is reflected in the estimated total world catch of fish. crustaceans, mollusks, etc., which is now estimated at approximately 27,000,000 metric tons a year, according to the "FAO Yearbook of Fishery Statistics." These figures show that not only has world fish production more than recovered the ground lost during World War II but that the total catch is now about 1/5 higher than it was in 1938.

Skipjack in Hawaiian Waters

The fishery research ship *Charles H. Gilbert* returned to its Pearl Harbor base June 10, completing a successful tuna tagging operation that began on May 10, it was announced by O. E. Sette, director of the Pacific Oceanic Fishery Investigations.

Tags of white plastic tubing were attached to the backs of 587 skipjack tuna (aku) on this cruise, bringing to a total of nearly 700 the number of fish marked and released by U.S. Fish and Wildlife Service scientists in Hawaiian waters in recent months.

With the fishing season for this most important of local commercial fishes now under way, hopes are that the sampan fleet may soon bring in some of the tagged aku. Information from tag recoveries will provide the first concrete evidence regarding the growth and migrations of this small striped tuna, which during the summer fishing season keeps a fleet of sampans busy and supports the only fish canning industry in the Islands.

The *Gilbert* fished mainly between Lanai and Kauai. Live bait (nehu) for the fishing was captured in Pearl Harbor and at Maalaea Bay, Maui. As frequently happens in the Hawaiian tuna fishery, it was necessary to spend a good deal more time and effort in searching for bait than in fishing for skipjack.

The majority of the fish tagged were 5 to 10 pounds in weight, but a number of 25 to 30 pound aku were also marked. Little difficulty was encountered in handling the smaller fish, but the violent struggles of the larger ones made it hard to affix the tags within the very brief period of time that these excitable, easily injured fish can be expected to survive out of water.

Another New Tunaboat Is Launched

The third new all-steel tuna clipper to be launched in San Diego in the last four months was the "Independence"—which went down the ways Monday, July 4, 1955. Designed and built by National Steel and Shipbuilding Corporation for J. Dewey Land, M. J. Coen, Earl L. Combest, M. L. Gear, Robert W. McClure and Fred C. Berger.

REPORT FROM WASHINGTON

(Continued from page 8)

.n putting the bill into law than you might expect. Chances are that one louse, perhaps the Senate, would okay it this year, with the other House waiting until next year to complete action.

If the bill does not become law, farm and fish interests have told the subcommittee, the ICC very probably will put the ban into effect.

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DAY RETIRES.--Albert M. Day, assistant to the Director of the Fish & Wildlife Service, retired June 30 after 36 years of government service. Day, who was director of FWS from 1946 to 1953, is joining the Arctic Institute of North America. He will direct a fact-finding study of migratory waterfowl.

Highly-regarded in wildlife and fisheries circles, Day was a U.S. Commissioner on the International Pacific Salmon Fisheries Commission and is a member of practically every scientific organization in both the fisheries and wildlife fields.

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MOORE TO SENATE COMMITTEE.--Milo E. Moore, former Director of Fisheries for the State of Washington, is the new technical assistant to the Senate Committee on Interstate and Foreign Commerce.

Moore has had considerable experience directing fishery rehabilitation projects in various parts of the world, including Italy, Greece, Japan, Formosa and South Korea. He was formerly a member of the U.S.-Canadian Sockeye Salmon Commission. His new duties will concern mainly problems of the Pacific Coast fisheries.

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MINIMUM WAGE.--Chances are high that the fishery exemption in the wage-hour law will be continued. The Senate already has passed wage-hour legislation, without making a change in exemptions. The House Committee on Education and Labor will hold hearings this month, but is not likely to include removal of the exemption in its bill.

The Senate bill boosts the national minimum wage from 75¢ per hour, to $1. If the fish exemption were removed from the present law, the industry would be subject to this minimum.

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WORLD FISHING.--The United Nation's Food & Agriculture Organization says that Japan is the World's Number 1 fishing country. The United States is second.

In its new edition of the "Yearbook of Fishery Statistics, 1952-53, Volume VI, Part I," the FAO says that Japan catches 4,577,000 metric tons a year, compared with U.S. landings of 2,385,000 metric tons. The Japanese are now catching more fish than ever; they have more than recovered ground lost during and after the war.

The total world catch of fish now is estimated at a whopping 27,000,000 metric tons a year--1/5 greater than some of the top pre-war years.

CUSTOMS SIMPLIFICATION.--Keep your eye on HR 6040, the so-called 1955 "customs simplification bill." It could "simplify" tuna import tariffs to lower levels.

The bill contains a new formula for the assessment of valuation on imported goods. The National Fisheries Institute says the bill provides that goods entering Customs would have tariffs fixed on a basis of export value and not on a foreign valuation formula, which is presently in use.

NFI says further: "Foreign value refers to the wholesale price at which goods are sold in the exporting country for home consumption. Export value is the wholesale price at which exporters buy goods for shipment to the United States. It is conceded that the use of export valuation would imply the appraising of goods at a generally lower valuation--thus lowering tariffs on some items now taxed on an ad valorem basis."

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BEEF COMPETITION.--This fall may see one of the greatest rushes of beef cattle to market in many years. The cattle herd is at a new record and big marketings are expected this fall, with retail beef prices going down.

This means more competition for fishery products as well as other protein products. Consumer incomes, meanwhile, continue at very high levels . . . and when incomes are high people buy more beef. Thus, with record beef supplies this fall, cheaper beef prices and higher incomes, fishery products will face keen competition, say the marketing experts.

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HOT WATER FOR FOOD BROKERS.--Federal Trade Commission charges against the National Food Brokers Association--scheduled for a full hearing starting August 15--promises to have far-reaching effects in the food industry. It is one of the broadest actions initiated by the Commission in recent years.

According to FTC charges, the brokers' group has operated an illegal trade conspiracy to the prejudice and injury of the public. The association is accused of engaging since 1943 in use of restricting, restraining and unfair policies that tended to eliminate competition.

FTC charges include these: (1) that the association's members agreed not to infringe on each other's sales territory; (2) that any member violating this "planned common course" was subject to discipline or suspension; and (3) that the brokers' group barred from membership anyone who called on customers of another member dealer.

Members of the organization include 75% of brokers whose business does not include buying for themselves; 40% of those who secure foodstuffs for which they receive commissions from the seller.

The brokers' organization and its members could be placed under a commission cease and desist order carrying maximum penalty of $5,000 for a violation, if found guilty of the alleged practices.

The association was still studying the charges at press time. In private conversation, at least a few brokers were saying that the FTC action was a form of political revenge, taken as a result of opposition to a recent voluminous report to Attorney General Herbert Brownell on anti-trust legislation.

roduction Prospects: Sardines, Anchovies

"O get a line on prospects for sar- dine and anchovy production, the tate of California Department of ish and Game made airplane spot- ng flights, June 1 to 5. Using the epartment's Beechcraft 4758N for pproximately five hours daily, the rea surveyed covered the area from t. Conception to Cape San Quintin, aja, California, including the off- nore islands.

The purpose, as stated by the re- earchers, was "to determine the dis- ribution and approximately abund- nce of schooling pelagic fishes with mphasis on the Pacific sardine and orthern anchovy.

Most of the schools were difficult o identify exactly as to species from he air and it was necessary to check ne schools sighted by means of ampling of catches made by com- nercial and bait fishermen and by irecting the research vessel *M/V Yellowfin* to areas of fish concentra- ion beyond the range of the com- nercial fleet. Sampling of many of hese schools revealed the reason for oor identification as many of the chools were composed of more than ne species. Visibility from the air vas good during the first three days outh of Pt. Conception but only mall local areas could be scouted n the 4th and 5th due to fog over he entire coast. The following is a ummary of the results of the survey y species.

Anchovy

Four large school groups of an- hovies were found in the area sur- eyed. The school group off Ventura onsisted of mixed one year old and lder anchovies and were fairly well cattered out in individual schools rom ½ to 2½ miles offshore. About 40-50 schools were sighted in this rea with a few more or less single chools scattered out below the main group off Pt. Mugu and in Santa Monica Bay.

The school group between San Pedro and Newport Beach consisted of about 100-150 schools of larger adult anchovies that were being fished by the commercial fleet during the time of this flight. These schools were fairly close to shore from the breaker line to about 2 miles off- shore. Some of the schools in this group were estimated to contain up- wards of 100-150 tons each.

The school group off the Coronado Strand was actually a continuous mass of anchovies from the breaker line to about ½ mile offshore and extended along the beach for about 2½ to 3 miles. From interviews of the bait fishermen working in this area it was disclosed that these an- chovies are mostly very small fish with a few schools of larger ones mixed in.

The school group found near San Ramon Bay between Cape Colnett and Cape San Quintin was compar- able in size and in relation to area near the beach as the fish found off the Coronado Strand. Sampling on the *Yellowfin* revealed that the fish inshore in the greatest concentrations were small fish, whereas the fish more offshore in individual schools were larger adult fish. Schools were found as far offshore as 2½ miles in this area but the main mass was within ½ mile of the beach.

Sardines

One school group of adult sar- dines was found on the west side of Santa Catalina Island. These schools were difficult to identify as to spe- cies, and the *Yellowfin* was called on to sample these schools to make certain of identification. It was found by the biologists aboard that these large (upwards of 200 tons per school) schools were predominately sardine with a few jack mackerel mixed in. About 25 schools were observed from the plane in this area.

In general, the 1954 year class sar- dines were fewer in number during this period along the coast than dur- ing the months of February and March when commercial aerial spot- ters located concentrations locally near Ventura and in Santa Monica Bay. Several small schools of these yearling sardines were spotted near and in the areas of anchovy concen- trations in the Santa Monica and Seal Beach areas. Interviews with bait fishermen disclosed that there are a few schools of small sardines pres- ent in these areas but not as many as there were a few months ago.

Mackerel

The large school group of fish presumed to be jack and Pacific mackerel was present on June 1 from Pt. Vicente to San Pedro. This school group was not found on the preced- ing days of scouting, which is typical of the behavior of jack mackerel, which are known to "run" for a few days in an area then disappear.

Other Species

Four schools of white sea bass were spotted near San Jose Point, Baja California, and observations were made of purse seine boats work- ing in cooperation with aerial spot- ters while catching bluefin tuna be- tween Pt. Loma and Newport Beach.

"Yellowfin" Cruise Results

In connection with the above air- plane spotting, the cruise ship *Yel- lowfin* covered a similar route of 408 miles; 169 fish schools were observed either visually or with the aid of the Sea Scanar. Of the schools sighted 87 were identified as anchovy, 34 sardine, 23 Pacific mackerel, 20 squid and 5 saury.

Fifty-four light stations were oc- cupied and hauls with the blanket net yielded eight samples of sar- dines, six of Pacific mackerel, five of jack mackerel and six of Northern anchovies. Forty-two yellowtail were caught by hook and line, tagged and released at the San Benito Islands.

In Baja California, sardines were sampled from Playa Maria Bay to Turtle Bay, at Cedros Island and at the San Benito Islands. At the latter location a large series of post larval and juvenile sardines (32-78 mm.) were attracted to the night light and captured with both a dip net and the blanket net. Anchovies and jack mack- erel were sampled from San Diego south to Turtle Bay and Pacific mack- erel from San Diego to Scammon's Lagoon.

The scouting work conducted in conjunction with the airplane cor- roborated our observations that the heaviest concentration of fish in the Baja California region scouted was between Cape Colnett and San Quin- tin Bay. Blanket net sampling proved these fish to be both juvenile and adult Northern anchovies.

Though not in the original itiner- ary, one night's work was devoted to Santa Catalina Island where the air- plane spotters reported numerous schools of fish thought to be sar- dines. Scouting and sampling in the area indicated that the fish were pre- dominantly adult sardines. In addi- tion, Pacific mackerel, jack mackerel, and anchovies were taken at this loca- tion. *

The GLOBE

An International News File Compiled from FOREIGN REPORTS

Canada.—The specific law relating to the marketing of containers of fish imported into Canada, according to recent correspondence from the Canadian Department of Fisheries' Director of Inspection and Consumer Service, requires that the label bear the following information: 1, Kind, grade, and weight of fish. 2, Name and country of origin. 3, Name and address of the packer.

Ecuador.—The Government of Ecuador has announced the opening of its territorial waters (up to 200 miles) to foreign fishermen obtaining licenses. This authority is limited to a zone of 1,000 meters seaward along the continental coast from the Colombian border to the town of Playas; from there this limit will follow a straight line to the island of Santa Clara or El Muerto, and thence another straight line to Boca Capones on the Peruvian border.

Japan.—A Japanese cooperative sales association (Kyohankai) to handle the export of frozen tuna has been established by the Japanese Frozen Food Export Association with Japanese Government consent, reports a U.S. Embassy dispatch from Tokyo.

Decreased demand, coupled with recent good catches, has depressed the Japanese market price of frozen tuna to $240 or $250 per ton, far below the export check price of $300 per ton, and industry and government circles apparently feel that drastic action is necessary to prevent circumvention of the check price system and adverse criticism from the United States tuna industry. The establishment of such a cooperative sales organization is to maintain the check price, stabilize the United States tuna market, and strengthen Japan's tuna export position.

Japan.—Because the various companies exporting tuna became concerned over the prospect of uncontrolled marketing of canned tuna in the United States, arrangements were made to place their stocks in the joint hands of two large Japanese trading companies for marketing. There were about 600,000 cases of canned tuna in stock in Japan early this year.

The trading companies sent two representatives to New York to survey the market. As a result of this visit, the two trading companies decided upon a reasonable schedule of exports from Japan.

Mexico.—The fishing industry apparently is not participating in the Mexican general economic recovery, but the fundamental causes are difficult to determine from the many claims and counterclaims. The shrimp industry claims that production in the latest season was 40% under that of the previous season. Some sources blamed speculative activities of United States purchasers which resulted in unprofitable prices, while others claimed that the shrimp beds were being exhausted by improper exploitation. For example, a delegate of the Fishing Chamber in Mazatlan claims that the shrimp which seek refuge in estuaries to reproduce are trapped there when they attempt to return to the sea.

Palmyra Island.—Hopes for a successful tuna fishery based on Palmyra Islands have failed—at least for the present. Original fishing surveys carried out under the sponsorship of the U.S. Fish and Wildlife Service were very successful, and on those results a Seattle firm commenced operations in mid-1954. They employed the 150-ton converted schooner "Commonwealth," with 40 tons of refrigeration space as the mothership and two smaller fishing vessels. Catches were poor and the "Commonwealth" is now lying idle in Honolulu.

Peru.—The Peruvian Congress convoked for a special session to ratify the Tripartite Agreement concluded between Peru, Chile, and Ecuador establishing maritime sovereignty over a zone of 200 miles from the coast (Declaration of Santiago), reports a May 5 U.S. Embassy dispatch from Quito.

It was announced on May 3 that the Governments of Chile and Peru have designated their respective delegations to the Conference of the Permanent Committee of the Southern Pacific scheduled to be held in Quito beginning the first week of July.

Samoa.—In order to obtain a supply of frozen tuna for its American Samoan tuna cannery, the United States firm operating that cannery has concluded a contract with a Japanese firm, a U.S. Embassy dispatch from Tokyo reports. The contract runs from June 1 to December 1, 1955, and contemplates a target catch of 3,750 metric tons with a sales price to the canner of $275 a ton for albacore and $190 a ton for light-meat tuna. The "Saipan Maru," a refrigerated vessel of 3,737 gross tons, has been chartered from a Japanese firm and will be used as a floating refrigerator plant at Samoa to freeze the tuna caught and brought to it by 20 Japanese fishing vessels.

Spain.—A 10% reduction by the Spanish Ministry of Commerce in the minimum export price of canned fish destined to the Western Hemisphere, and reports that United States purchases of Japanese tuna during 1955 will be greatly reduced, have had a salutary effect among Spanish canners, who hope to benefit by larger orders from the United States markets. This possibility seems to be supported by the large number of requests for quotations being received. Canners expect good business if the present albacore tuna season is at least as good as that of last year.

)ceanographic Research and World Fisheries

Oceanographic research as related the fisheries of the world is cov-ed in the current issue (April-ne 1955) of the *FAO Fisheries Bul-in*. The article deals with oceanog-phy in connection with the distri-ition, abundance and behavior of sh, fishing operations and fisheries ience.

The authors discuss the task of sheries biology in connection with sheries resources. The biologist must etermine the general characteristics an area and its fishery stocks. his includes the composition of the ocks, identification of species, the eneral life history of the fish (in-uding feeding, reproduction and igratory habits) and the measure-ent of potentialities for growth, eproduction and viability.

While the cruises of various re-earch vessels have established the ajor features of marine zoogeog-aphy, "there remains much to be one to enable us to evaluate unex-loited areas in a way that will give fishermen the information they need to plan the development of fishing operations." This includes the study of the types of fauna found in various situations, means of predicting variations in the distribution, plus a description of the physical, chemical and biotic properties of the seas and oceans.

There is need in various parts of the world to assess the natural abundance of fishery stocks. For example, in the Arabian Sea east of Somalia, fishermen have caught tuna for many years and small canneries have processed the catch for the export market. Now the canneries would like to extend their operations and the question arises as to whether there are sufficient and accessible stocks of tuna living in the Somali coastal waters. The authors point out that it is not sufficient merely to establish that there are more fish available. Cannery operators need to have some indication of the actual numbers likely to be available so that they can provide sufficient fishing boats and the extra gear as well as install more processing equipment to handle the catch.

Fishermen generally know a great deal about movements, shoaling and feeding habits of the fish they catch, but knowledge is not easy to collect and extend on such subjects as the behavior of shoals and their changes in density, position and depth with wind, tide and other factors. "The experienced fisherman does not expect a complete explanation but any knowledge which would enable him to improve his gear and fishing methods would be very welcome."

It has been stated that fish move away from shoal water before the approach of storms and heavy swell, and that they feed voraciously just before storms; it is even asserted that fish are aware of impending earthquakes. But evidence is meager and deserves more study by fishery research workers.

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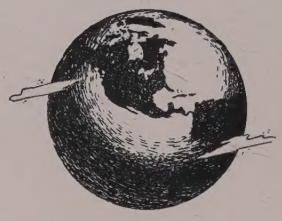

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